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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/427,675	10/27/1999	ERIC JACQUINOT	JACQUINOT=7	3607

1444 7590 10/17/2005

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EXAMINER	
DEO, DUY VU NGUYEN	

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT	PAPER
	100405

DATE MAILED:

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Commissioner for Patents

This action is to reponse the matters requested by the Order Returning Undocketed Appeal paper, dated 12/7/04.

The IDS filed 10/7/1999 has been considered. Please see the miscellaneous action paper sent on 2/1/05.
A supplemental Examiner's Answer is attached with a correct copy of claims 17, 20-22 and written initial for the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner
Duy-Vu N. Deo
10/4/05

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/427,675
Filing Date: October 27, 1999
Appellant(s): JACQUINOT ET AL.

Sheridan Neimark
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/26/04.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 17-19, 23, 24, 26-29, 37, 40 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,043,159	Jacquinot et al.	3-2000
5,759,917	Grover et al.	6-1998

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 17-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacquinot et al. (US 6,043,159) and Grover et al. (US 5,759,917).

Jacquinot teaches a polishing an integrated circuit in which isolation layer, including silicon oxide and silicon nitride, is polished by an abrasive composition which comprises an

aqueous acid suspension of individualized colloidal silica particles not linked to each other by siloxane bonds. The pH of the composition is about 1.5-4, the abrasives have diameters about 10-50 nm and a concentration of about 15-30% (col. 2, line 39-65; col. 4, line 1-10). Unlike claimed invention he doesn't describe that the support is impregnated with an abrasive liquid composition However, since the polishing pad is soaked with the abrasive liquid composition during the polishing, the abrasive liquid composition would get into the abrasive pad and therefore, this would create claimed polishing pad that impregnated with an abrasive composition.

Unlike claimed invention, Jacquinot doesn't describe having a surfactant in the abrasive composition. Grover teaches a method of polishing the oxide layer using a surfactant in the abrasive composition. The surfactant can be anionic or nonionic (col. 6, line 38-48). It would have been obvious for one skill in the art at the time of the invention in light of Grover to add a surfactant because Grover teaches that a surfactant is used to improve the within-wafer-non-uniformity (WIWNU) of the wafers, thereby improving the surface of the wafer and reducing wafer defects (col. 6, line 45-48). The combined method would read on claimed the abrasive liquid composition consists essentially of an aqueous acid suspension of individualized colloidal silica particles not linked to each other by siloxane bonds and a surfactant or the abrasive liquid composition is substantially free of other components.

Referring to claims 31-36, Grover teaches that the surfactant concentration should be at 0.001-10%, and he teaches that it will typically vary depending on the particular surfactant selected and the nature of the surface of the metal oxide abrasive and the amount of additive is adjusted to achieve the desired concentration in the polishing slurry (col. 6, line 49-64).

Referring to claim 40, Grover further describes the layer used in isolation of integrated circuit, taught by Jacquinot, comprises oxide and nitride layer (col. 2, line 20-31).

(11) Response to Argument

In response to appellant's argument that Examiner has not pointed out why the person of ordinary skill in the art, seeking to solve the problem faced by Appellants, would not simply have followed Grover rather than abstracting a minor and seemingly insignificant material from Grover for incorporation into Jacquinot or the improved results obtained by Appellants' process could not have been predicted or foreseen, the fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Appellant's summery of Jacquinot's slurry and Grover's slurry (as in argument II and III) is acknowledged. In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Referring to appellant's argument that the person skilled in the art seeking to obtain the present results (the selectivity) would have had no incentive to combine both references, this argument does not answer to the reason of adding a surfactant as cited in the rejection. Appellants have not been able to traverse that it would have been obvious for one skill in the art at the time of the invention in light of Grover to add a surfactant because Grover teaches that a

surfactant is used to improve the within-wafer-non-uniformity (WIWNU) of the wafers, thereby improving the surface of the wafer and reducing wafer defects (col. 6, line 45-48).

Referring to appellant's argument that in order to obtain Appellants' results (the selectivity), one must use the "unique chemistry" disclosed by Grover, first of all, the reason for adding a surfactant is not the selectivity, second of all, this result of selectivity is not in the claims.

Referring to appellant's argument about the addition of a surfactant to the Jacquinot composition provides unexpected result of the selectivity polishing of silicon oxide to silicon nitride (pages 18-30) as shown by the Declaration. First of all, there is no selectivity limitation in the claims. Second of all, the argument and the Declaration refer(s) only to the system described in the above referenced application and not to the individual claims of the application. Thus, there is no showing that the objective evidence of nonobviousness is commensurate in scope with the claims. See MPEP § 716. While the declaration shows a better polishing selectivity between the TEOS and the nitride and a more stable slurry; however, the claims do not have or include neither the selectivity nor the slurry stability. Also, the claims do not include the selectivity of TEOS against the nitride. As a matter of fact, the claims show that either silicon oxide or nitride can be polished. Furthermore, the Declaration is insufficient to overcome the rejection because it is not commensurate in scope with the claims. The surfactant (®Emulsogen EP) shown is not in the claims, nor is the TEOS layer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

DVD
June 10, 2004

Conferees
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APPENDIX

17. (Twice Amended) A process for mechanical chemical polishing in the integrated circuits industry, comprising:

rubbing a layer with a support impregnated with an abrasive liquid composition, wherein

said layer is (1) a material selected from the group consisting of silicon oxide, silicon nitride, and a polymer having a low dielectric constant, or (2) one layer of silicon oxide and another layer of silicon nitride, and

said abrasive liquid composition comprises an aqueous acid suspension of

(i) individualized colloidal silica particles not linked to each other by siloxane bonds,

together with (ii) a surfactant, and

wherein said abrasive liquid composition is at a PH of 1-5.

18. The process of claim 17, wherein said surfactant is an anionic or non-ionic surfactant.

19. The process of claim 18, wherein said surfactant is anionic.

20. The process of claim 19, wherein said rubbing is carried out with said individualized colloidal silica particles which have diameters between 12 nm and 100 nm.

21. The process of claim 18, wherein said rubbing is carried out with said individualized colloidal silica particles which have diameters between 12 nm and 100 nm.

22. The process of claim 17, wherein said rubbing is carried out with said individualized colloidal silica particles which have diameters between 12 nm and 100 nm.

23. The process of claim 22, wherein said pH is between 2 and 3, and said particle size is between 35 and 50 nm.

24. The process of claim 21, wherein said pH is between 2 and 3, and said particle size is between 35 and 50 nm.

25. The process of claim 20, wherein said pH is between 2 and 3, and said particle size is between 35 and 50 nm.

26. The process of claim 25, wherein the concentration by weight of said individualized colloidal silica particles is between 25 and 35 % in said aqueous acid suspension.

27. The process of claim 24, wherein the concentration by weight of said individualized colloidal silica particles is between 25 and 35 % in said aqueous acid suspension.

28. The process of claim 23, wherein the concentration by weight of said individualized colloidal silica particles is between 25 and 35 % in said aqueous acid suspension.

29. The process of claim 22, wherein the concentration by weight of said individualized colloidal silica particles is between 25 and 35 % in said aqueous acid suspension.

30. The process of claim 21, wherein the concentration by weight of said individualized colloidal silica particles is between 25 and 35 % in said aqueous acid suspension.

31. The process of claim 18 wherein the volumetric concentration of said surfactant is between 0.001% and 5%.

32. The process of claim 20 wherein the volumetric concentration of said surfactant is between 0.001% and 5%.

33. The process of claim 25 wherein the volumetric concentration of said surfactant is between 0.001% and 5%.

34. The process of claim 18, wherein the volumetric concentration of said surfactant is between 0.01% and 1%.

35. The process of claim 22, wherein the volumetric concentration of said surfactant is between 0.01% and 1%.

36. The process of claim 26, wherein the volumetric concentration of said surfactant is between 0.01% and 1%.

37. A process for mechanical chemical polishing in the integrated circuits industry, comprising

rubbing a layer with a support impregnated with an abrasive liquid composition, wherein

said layer is (1) a material selected from the group consisting of silicon oxide, silicon nitride, and a polymer having a low dielectric constant, or (2) one layer of silicon oxide and another layer of silicon nitride, and

said abrasive liquid composition consists essentially of an aqueous acid suspension of

(i) individualized colloidal silica particles not linked to each other by siloxane bonds,

together with (ii) a surfactant, and

wherein said abrasive liquid composition is at a pH of 1-5.

38. The process of claim 37, wherein said surfactant is an anionic or non-ionic surfactant.

39. The process of claim 37, wherein the pH is between 2 and 3.

40. A process for mechanical chemical polishing in the integrated circuits industry, comprising

rubbing a layer with a support impregnated with an abrasive liquid composition, wherein

said layer comprises one layer of silicon oxide and another layer of silicon nitride, and

said abrasive liquid composition is an aqueous acid suspension, having a pH of 1-5, of

(i) individualized colloidal silica particles not linked to each other by siloxane bonds,

together with (ii) a surfactant,

wherein said abrasive liquid composition is substantially free of other components.